

## Section 2

# Duxbury Clipper

Thursday, April 14, 1977

## STORM CURRENTS

By Gershom Bradford

Storm currents, these transient movements of water, affect Duxbury Beach. Wind-driven waves elevate the water level coves and deep bights on the coast. A good example is Warrens Cove, where in a nor'easter, the water piles up, setting up a current running northward between the beach and Browns Shoal (Now charted as Browns Bank). When the pressure eases the sand falls to the bottom forming a bar.

In 1605 Champlain anchored in Warrens Cove with his 2 vessels. He sent the smaller through this channel and she grounded on the bar.

Considering wider waters of Cape Cod Bay the same condition exists; piled up water seeks an outlet and races out by the tip of the Cape roughly between Woodend and Race Point. It has eroded a gully of the deepest water in the whole area, appearing to carry the eroded sand around the tip and as the pressure subsides falls to the bottom forming Peaked Hill Bar.

All currents in the Northern Hemisphere are turned to the right by the rotation of the earth which probably accounts for why the escape water uses the eastern side of the Bay. Yet, there is a northern movement of storm water on the west side along Duxbury Beach. Kelp driven before the northeast wind without current would land near Rouses Hummock and the Pavillion, but it actually comes ashore on Green Harbor Beach.

When, as a boy, I used to ride the kelp carts, we crossed Rainbow Bridge turning left headed for the beach; the kelp was all to the north. Incidentally, the code of kelping was that you could haul off all you could, piling it up on the upland. That was yours to come for the next day when the supply on the beach was exhausted. There were exceptions as there are exceptional storms. In 1897, a large quantity of kelp came ashore at the end of the bridge. No doubt this has happened at other times.

### Dune Damage

About 20 years ago a friend sent me pictures of the havoc done to the dunes after a severe storm. Their sea faces were perpendicular. The current had eroded at their bases, taking away the slope, causing slabs of sand to fall until they presented the singular condition of vertical walls. Again indicating the existence of a storm current.

It is surprising how moveable sand is. Grains of sand weigh little when submerged in sea water and are easily moved by a little current. This was brought home to me in 1901.

It was December and I was assistant to a Coast Survey engineer surveying Great Egg Harbor bar (cold work). One night in a sou'easter a large steel square-rigger came ashore. It was quite a sight to see her sails ripped to small fragments. She never got off. Thirty years later a friend sent me a photograph of a steel mast of this ship Sindia projecting out of the beach where children were playing. She had worked farther ashore and sank out of sight.

A most remarkable instance where a storm current saved a ship and her crew, was the experience of the U.S.S. Relief in 1838. She had rounded Cape Horn, but was being driven down on the rocky coast. Her captain saw a chance to anchor in the bight of a small island with both bower anchors down. The wind shifted to the southwest and exposed the ship to the full force of wind and sea. He dropped his 2 sheet (heaviest) anchors and rode heavily with 4 anchors down. One by one they parted until only the starboard bower was intact, but dragging. Soon that parted and the ship was drifting directly for the reef. When all hope was gone the storm current rushing by the reef caught the ship carrying past the reef and around the outer rock, dragging her 4 chains on the bottom. The captain got a scrap of sail on her and escaped around the island to safety in the Pacific.

Incidentally, she arrived off Valparaiso, but could not enter. The captain of a British frigate seeing the Relief's situation graciously sent out an anchor. Brotherhood of the sea.